

SEQUENCE LISTING

<110> Presnell, Scott R.
 Taft, David W.
 Foley, Kevin P.

<120> Mammalian Transforming Growth Factor Beta - 9

<130> 98-54

<150> 60/100,706

<151> 1998-09-17

<160> 22

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1819

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (71)...(676)

<400> 1

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      Met Leu Val Ala Gly Phe Leu Leu Ala Leu Pro Pro Ser
            1             5             10

tgg gcc gcg ggc gcc ccg agg gcg ggc agg cgc ccc gcg cgg ccg cgg      157
Trp Ala Ala Gly Ala Pro Arg Ala Gly Arg Arg Pro Ala Arg Pro Arg
      15             20             25

ggc tgc gcg gac cgg ccg gag gag cta ctg gag cag ctg tac ggg cgc      205
Gly Cys Ala Asp Arg Pro Glu Glu Leu Leu Glu Gln Leu Tyr Gly Arg
      30             35             40             45

ctg gcg gcc ggc gtg ctc agt gcc ttc cac cac acg ctg cag ctg ggg      253
Leu Ala Ala Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly
            50             55             60

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ccg cgt gag cag gcg cgc aac gcg agc tgc ccg gca ggg ggc agg ccc 301
 Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro
 65 70 75

gcc gac cgc cgc ttc cgg ccg ccc acc aac ctg cgc agc gtg tcg ccc 349
 Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro
 80 85 90

tgg gcc tac aga atc tcc tac gac ccg gcg agg tac ccc agg tac ctg 397
 Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu
 95 100 105

cct gaa gcc tac tgc ctg tgc cgg ggc tgc ctg acc ggg ctg ttc ggc 445
 Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly
 110 115 120 125

gag gag gac gtg cgc ttc cgc agc gcc cct gtc tac atg ccc acc gtc 493
 Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val
 130 135 140

gtc ctg cgc cgc acc ccc gcc tgc gcc ggc ggc cgt tcc gtc tac acc 541
 Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr
 145 150 155

gag gcc tac gtc acc atc ccc gtg ggc tgc acc tgc gtc ccc gag ccg 589
 Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro
 160 165 170

gag aag gac gca gac agc atc aac tcc agc atc gac aaa cag ggc gcc 637
 Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala
 175 180 185

aag ctc ctg ctg ggc ccc aac gac gcg ccc gct ggc ccc tgaggccggt 686
 Lys Leu Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
 190 195 200

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<210> 2

<211> 202

<212> PRT

<213> Homo sapiens

<400> 2

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20      25      30
Asp Arg Pro Glu Glu Leu Leu Glu Gln Leu Tyr Gly Arg Leu Ala Ala
35      40      45
Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly Pro Arg Glu
50      55      60
Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro Ala Asp Arg
65      70      75      80
Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala Tyr
85      90      95
Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu Ala
100     105     110
Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu Asp
115     120     125
Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu Arg
130     135     140
Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala Tyr
145     150     155     160
Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys Asp
165     170     175
Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala Lys Leu Leu
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Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
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<210> 3
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 <213> Homo sapiens

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 Ala Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly Pro Arg
 35 40 45
 Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro Ala Asp
 50 55 60
 Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala
 65 70 75 80
 Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu
 85 90 95
 Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu
 100 105 110
 Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu
 115 120 125
 Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala
 130 135 140
 Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys
 145 150 155 160
 Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala Lys Leu
 165 170 175
 Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
 180 185

<210> 4
 <211> 186
 <212> PRT
 <213> Homo sapiens

<400> 4
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 Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly Pro Arg Glu
 35 40 45
 Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro Ala Asp Arg
 50 55 60

Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala Tyr
 65 70 75 80
 Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu Ala
 85 90 95
 Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu Asp
 100 105 110
 Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu Arg
 115 120 125
 Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala Tyr
 130 135 140
 Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys Asp
 145 150 155 160
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 165 170 175
 Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
 180 185

<210> 5

<211> 185

<212> PRT

<213> Homo sapiens

<400> 5

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 20 25 30
 Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly Pro Arg Glu Gln
 35 40 45
 Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro Ala Asp Arg Arg
 50 55 60
 Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala Tyr Arg
 65 70 75 80
 Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu Ala Tyr
 85 90 95
 Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu Asp Val
 100 105 110
 Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu Arg Arg
 115 120 125
 Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala Tyr Val
 130 135 140
 Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys Asp Ala
 145 150 155 160
 Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala Lys Leu Leu Leu
 165 170 175

Gly Pro Asn Asp Ala Pro Ala Gly Pro
180 185

<210> 6
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<212> DNA
<213> Homo sapiens

<400> 6
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<210> 7
<211> 22
<212> DNA
<213> Homo sapiens

<400> 7
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<210> 8
<211> 1221
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (79)...(693)

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Met Leu Gly Thr Leu Val Trp Met Leu Ala Val
1 5 10

ggc ttc ctg ctg gca ctg gcg ccg ggc cgc gcg gcg ggc gcg ctg agg 159
Gly Phe Leu Leu Ala Leu Ala Pro Gly Arg Ala Ala Gly Ala Leu Arg
15 20 25

acc ggg agg cgc ccg gcg cgg ccg cgg gac tgc gcg gac cgg ccg gag 207
Thr Gly Arg Arg Pro Ala Arg Pro Arg Asp Cys Ala Asp Arg Pro Glu
30 35 40

gag ctc ctg gag cag ctg tac ggg cgg ctg gcg gcc ggc gtg ctc agc 255
Glu Leu Leu Glu Gln Leu Tyr Gly Arg Leu Ala Ala Gly Val Leu Ser
45 50 55

gcc ttc cac cac acg ctg cag ctc ggg ccg cgc gag cag gcg cgc aat 303
 Ala Phe His His Thr Leu Gln Leu Gly Pro Arg Glu Gln Ala Arg Asn
 60 65 70 75

gcc agc tgc ccg gcc ggg ggc agg gcc gcc gac cgc cgc ttc cgg cca 351
 Ala Ser Cys Pro Ala Gly Gly Arg Ala Ala Asp Arg Arg Phe Arg Pro
 80 85 90

ccc acc aac ctg cgc agc gtg tgc ccc tgg gcg tac agg att tcc tac 399
 Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr
 95 100 105

gac cct gct cgc ttt ccg agg tac ctg ccc gaa gcc tac tgc ctg tgc 447
 Asp Pro Ala Arg Phe Pro Arg Tyr Leu Pro Glu Ala Tyr Cys Leu Cys
 110 115 120

cga ggc tgc ctg acc ggg ctc tac ggg gag gag gac ttc cgc ttt cgc 495
 Arg Gly Cys Leu Thr Gly Leu Tyr Gly Glu Glu Asp Phe Arg Phe Arg
 125 130 135

agc aca ccc gtc ttc tct cca gcc gtg gtg ctg cgg cgc aca gcg gcc 543
 Ser Thr Pro Val Phe Ser Pro Ala Val Val Leu Arg Arg Thr Ala Ala
 140 145 150 155

tgc gcg ggc ggc cgc tct gtg tac gcc gaa cac tac atc acc atc ccg 591
 Cys Ala Gly Gly Arg Ser Val Tyr Ala Glu His Tyr Ile Thr Ile Pro
 160 165 170

gtg ggc tgc acc tgc gtg ccc gag ccg gac aag tcc gcg gac agt gcg 639
 Val Gly Cys Thr Cys Val Pro Glu Pro Asp Lys Ser Ala Asp Ser Ala
 175 180 185

aac tcc agc atg gac aag ctg ctg ctg ggg ccc gcc gac agg cct gcg 687
 Asn Ser Ser Met Asp Lys Leu Leu Leu Gly Pro Ala Asp Arg Pro Ala
 190 195 200

ggg cgc tgatgccggg gactgcccgc catggcccag cttcctgcat gcatcaggtc 743
 Gly Arg
 205

ccctggccct gacaaaacc accccatgat ccctggccgc tgcctaattt ttccaaaagg 803
 acagctacat aagctttaaa tatatttttc aaagtagaca ctacatatct acaactatct 863
 tgaatagtgg cagaaactat tttcatatta gtaatttaga gcaagcatgt tgtttttaaa 923
 cttctttgat atacaagcac atcacacaca tcccgttttc ctctagtagg attcttgagt 983

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<210> 9

<211> 205

<212> PRT

<213> Mus musculus

<400> 9

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20      25      30
Ala Arg Pro Arg Asp Cys Ala Asp Arg Pro Glu Glu Leu Leu Glu Gln
35      40      45
Leu Tyr Gly Arg Leu Ala Ala Gly Val Leu Ser Ala Phe His His Thr
50      55      60
Leu Gln Leu Gly Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala
65      70      75      80
Gly Gly Arg Ala Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg
85      90      95
Ser Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Phe
100     105     110
Pro Arg Tyr Leu Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr
115     120     125
Gly Leu Tyr Gly Glu Glu Asp Phe Arg Phe Arg Ser Thr Pro Val Phe
130     135     140
Ser Pro Ala Val Val Leu Arg Arg Thr Ala Ala Cys Ala Gly Gly Arg
145     150     155     160
Ser Val Tyr Ala Glu His Tyr Ile Thr Ile Pro Val Gly Cys Thr Cys
165     170     175
Val Pro Glu Pro Asp Lys Ser Ala Asp Ser Ala Asn Ser Ser Met Asp
180     185     190
Lys Leu Leu Leu Gly Pro Ala Asp Arg Pro Ala Gly Arg
195     200     205
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<210> 10

<211> 23

<212> DNA

<213> Homo sapiens

<400> 10

gatcatgggg tgggttttgt cag

<210> 11
 <211> 22
 <212> DNA
 <213> Homo sapiens

<400> 11
 gaggacttcc gctttcgcaa ca

22

<210> 12
 <211> 183
 <212> PRT
 <213> Mus musculus

<400> 12

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Ala	Gly	Val	Leu	Ser	Ala	Phe	His	His	Thr	Leu	Gln	Leu	Gly	Pro	Arg	35	40	45	
Glu	Gln	Ala	Arg	Asn	Ala	Ser	Cys	Pro	Ala	Gly	Gly	Arg	Ala	Ala	Asp	50	55	60	
Arg	Arg	Phe	Arg	Pro	Pro	Thr	Asn	Leu	Arg	Ser	Val	Ser	Pro	Trp	Ala	65	70	75	80
Tyr	Arg	Ile	Ser	Tyr	Asp	Pro	Ala	Arg	Phe	Pro	Arg	Tyr	Leu	Pro	Glu	85	90	95	
Ala	Tyr	Cys	Leu	Cys	Arg	Gly	Cys	Leu	Thr	Gly	Leu	Tyr	Gly	Glu	Glu	100	105	110	
Asp	Phe	Arg	Phe	Arg	Ser	Thr	Pro	Val	Phe	Ser	Pro	Ala	Val	Val	Leu	115	120	125	
Arg	Arg	Thr	Ala	Ala	Cys	Ala	Gly	Gly	Arg	Ser	Val	Tyr	Ala	Glu	His	130	135	140	
Tyr	Ile	Thr	Ile	Pro	Val	Gly	Cys	Thr	Cys	Val	Pro	Glu	Pro	Asp	Lys	145	150	155	160
Ser	Ala	Asp	Ser	Ala	Asn	Ser	Ser	Met	Asp	Lys	Leu	Leu	Leu	Gly	Pro	165	170	175	
Ala	Asp	Arg	Pro	Ala	Gly	Arg										180			

<210> 13
 <211> 30
 <212> PRT
 <213> Homo sapiens

<400> 13

Gln	Leu	Gly	Pro	Arg	Glu	Gln	Ala	Arg	Asn	Ala	Ser	Cys	Pro	Ala	Gly
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Gly	Arg	Pro	Ala	Asp	Arg	Arg	Phe	Arg	Pro	Pro	Thr	Asn	Leu		
			20					25					30		

<210> 14

<211> 21

<212> PRT

<213> Homo sapiens

<400> 14

Gly	Glu	Glu	Asp	Val	Arg	Phe	Arg	Ser	Ala	Pro	Val	Tyr	Met	Pro	Thr
1				5				10						15	
Val	Val	Leu	Arg	Cys											
			20												

<210> 15

<211> 34

<212> PRT

<213> Homo sapiens

<400> 15

Cys	Val	Pro	Glu	Pro	Glu	Lys	Asp	Ala	Asp	Ser	Ile	Asn	Ser	Ser	Ile
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Asp	Lys	Gln	Gly	Ala	Lys	Leu	Leu	Leu	Gly	Pro	Asn	Asp	Ala	Pro	Ala
			20					25					30		
Gly	Pro														

<210> 16

<211> 2361

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (572)...(1202)

<400> 16

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ggccctgagc gcgcgacccc aggccctggg cgccccgcg catgctcgcg gctggaagcc	480
ccagtttgcg tggcccttcg gggtattccg ctcaagagcc gccgcgtcgc cccatctcgg	540
cgcgaatctg aaagcgcttt cgggggagaa g atg ttg ggg gca ctg gtc tgg	592
Met Leu Gly Ala Leu Val Trp	
1 5	
atg ctg gta gcc ggc ttc ctg ctg gcg ctg ccg ccg agc tgg gcc gcg	640
Met Leu Val Ala Gly Phe Leu Leu Ala Leu Pro Pro Ser Trp Ala Ala	
10 15 20	
ggc gcc ccg agg gcg ggc agg cgc ccc gcg cgg ccg cgg ggc tgc gcg	688
Gly Ala Pro Arg Ala Gly Arg Arg Pro Ala Arg Pro Arg Gly Cys Ala	
25 30 35	
gac cgg ccg gag gag cta ctg gag cag ctg tac ggg cgc ctg gcg gcc	736
Asp Arg Pro Glu Glu Leu Leu Glu Gln Leu Tyr Gly Arg Leu Ala Ala	
40 45 50 55	
ggc gtg ctc agt gcc ttc cac cac acg ctg cag ctg ggg ccg cgt gag	784
Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly Pro Arg Glu	
60 65 70	
cag gcg cgc aac gcg agc tgc ccg gca ggg ggc agg ccc gcc gac cgc	832
Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro Ala Asp Arg	
75 80 85	
cgc ttc cgg ccg ccc acc aac ctg cgc agc gtg tcg ccc tgg gcc tac	880
Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro Trp Ala Tyr	
90 95 100	
aga atc tcc tac gac ccg gcg agg tac ccc agg tac ctg cct gaa gcc	928
Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu Ala	
105 110 115	
tac tgc ctg tgc cgg ggc tgc ctg acc ggg ctg ttc ggc gag gag gac	976
Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu Asp	
120 125 130 135	
gtg cgc ttc cgc agc gcc cct gtc tac atg ccc acc gtc gtc ctg cgc	1024
Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu Arg	
140 145 150	
cgc acc ccc gcc tgc gcc ggc ggc cgt tcc gtc tac acc gag gcc tac	1072

Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala Tyr	
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gtc acc atc ccc gtg ggc tgc acc tgc gtc ccc gag ccg gag aag gac	1120
Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys Asp	
170	175 180
gca gac agc atc aac tcc agc atc gac aaa cag ggc gcc aag ctc ctg	1168
Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala Lys Leu Leu	
185	190 195
ctg ggc ccc aac gac gcg ccc gct ggc ccc tga g gccggtcctg	1212
Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro *	
200	205
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aaaaaaaaa	2361

<210> 17

<211> 209

<212> PRT

<213> Homo sapiens

<400> 17

Met Leu Gly Ala Leu Val Trp Met Leu Val Ala Gly Phe Leu Leu Ala
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 20 25 30
 Ala Arg Pro Arg Gly Cys Ala Asp Arg Pro Glu Glu Leu Leu Glu Gln
 35 40 45
 Leu Tyr Gly Arg Leu Ala Ala Gly Val Leu Ser Ala Phe His His Thr
 50 55 60
 Leu Gln Leu Gly Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala
 65 70 75 80
 Gly Gly Arg Pro Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg
 85 90 95
 Ser Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr
 100 105 110
 Pro Arg Tyr Leu Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr
 115 120 125
 Gly Leu Phe Gly Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr
 130 135 140
 Met Pro Thr Val Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg
 145 150 155 160
 Ser Val Tyr Thr Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys
 165 170 175
 Val Pro Glu Pro Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp
 180 185 190
 Lys Gln Gly Ala Lys Leu Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly
 195 200 205
 Pro

<210> 18

<211> 187

<212> PRT

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 Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu Pro Glu
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Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly Glu Glu
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 Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val Val Leu
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 Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr Glu Ala
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 Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro Glu Lys
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